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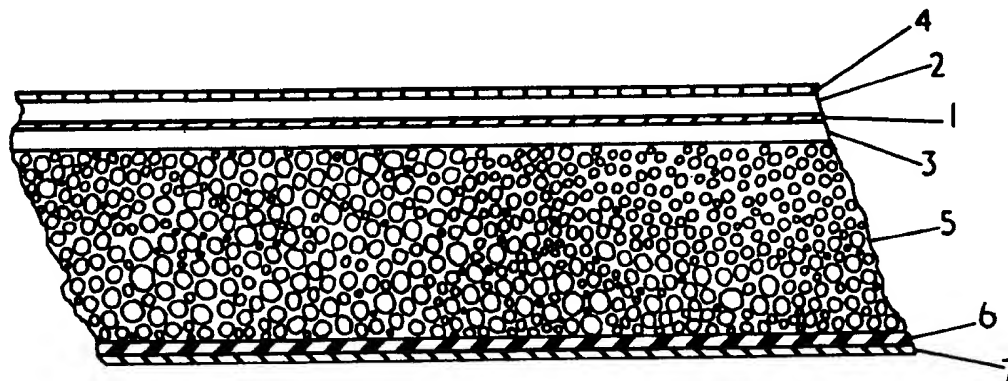
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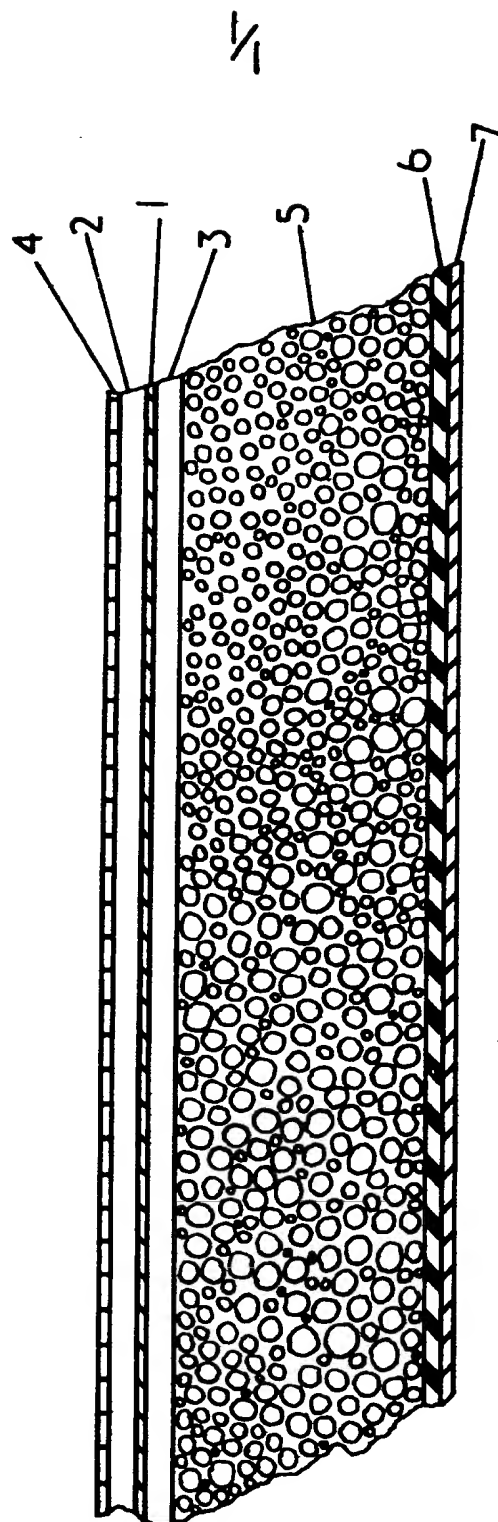
(54) Laminated sheet

(57) A laminated sheet for use in roofing comprises a layer of bituminous sealant composition (3) and a sheet of a flexible foamed polymer e.g. polyethylene (5). Preferably, the sealant composition is sandwiched between an impermeable sheet (1), e.g. polyethylene or aluminium and the foamed polymer (5). Preferably a layer of adhesive (6) and a release sheet (7) are applied to the exposed surface of the flexible foam (5) and a further layer of bituminous sealant (2) and a sheet of aluminium foil (4) are applied to the exposed surface of the sheet (1).



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## SPECIFICATION

## Laminated sheet

5 The present invention relates to laminated sheet, in particular but not exclusively for use in roofing.

It is known to provide a weatherproofing finish to a flat concrete roof or like surface by applying thereto a laminate of a bituminous material supported by a sheet of plastics material. Generally, a primer is applied to the surface, and then the laminate is applied to the surface so that the bituminous material comes into contact therewith and becomes adhered by action of the primer. The laminate may subsequently be provided with a reflective surface by applying a layer of chippings thereto.

It is also known to provide insulation on a roof by applying thereto a foamed material. This is generally supplied as boards, either adhered to a wooden backing which may be nailed or screwed onto the roof, or supported by a fibrous mat of, for instance, glass fibre. In the latter case the boards must be adhered to the surface. The boards in both cases are rigid and the foam is generally brittle and often friable.

Therefore, to provide both insulation and weatherproofing it is necessary to apply firstly a layer of foamed insulation board and then a layer of weatherproofing laminate. Alternatively the rigid insulation boards must be covered with a weather-proofing layer prior to application to the roof. Such boards are difficult to store, transport and apply to a roof well enough to provide a weatherproof finish.

It is an object of the present invention to provide a laminated sheet which in use at least in part overcomes the disadvantages of presently used materials.

Therefore according to the present invention, a laminated sheet comprises a bituminous sealing composition and a layer of a flexible foamed material.

Preferably the side of the flexible foamed material away from the bituminous composition has on it a layer of adhesive. This may be self-adhesive or activatable by action of a primer. Conveniently, the exposed face of the layer of adhesive is covered by a release sheet of, for instance, siliconised paper or polyvinyl chloride.

The bituminous composition may be a bitumen or pitch composition which contains fibrous or non-fibrous fillers, in sheet form, or may be a tacky or non-tacky sealing composition sandwiched between a layer of impermeable sheet and the layer of flexible framed material.

The impermeable material may comprise a sheet of aluminium foil or plastics material, and is preferably a sheet of polyethylene. Advantageously the face of the layer of impermeable material away from the bituminous composition has on it a second layer of bituminous composition. This may in turn be covered, either during manufacture or on site by a layer of reflective material such as aluminium foil or

chippings.

The bituminous composition may comprise an air blown bitumen or a bitumen including polymeric additives. Suitable compositions are well known in the art.

Preferably the flexible foamed plastics material is a foamed polyethylene, although other plastics materials, such as polyvinyl chloride or polyamines, in foamed form may also be used. It is not possible to use foamed phenolic or urea/formaldehyde resins as these are rigid and brittle.

Preferably the flexible foamed material has a thickness of about 35mm. The laminated sheet is conveniently formed in widths of about 1m and lengths of up to 15m with a selvage along one longitudinal edge thereof.

The advantage of the laminated sheet according to the present invention is that it may be manufactured as a roll and stored before use. In use, it can be used in a one step operation to provide both weatherproofing and insulation on a suitable surface.

The present invention will now be described by way of example only with reference to the accompanying drawing which shows a side view of a laminated sheet according to the invention.

Referring to the drawing, there is shown a laminated sheet based on a polyethylene film (1). Layers (2) and (3) of a bituminous sealing composition are applied to the surfaces of the film (1). A sheet of aluminium foil (4) is applied to the exposed surface of the upper layer (2) of the bituminous composition. The layers (1) to (4) are all of the same width and are arranged in register.

A layer (5) of flexible foamed polyethylene which is narrower than the layers (1) to (4) is applied to the exposed surface of the lower layer (3) of bituminous composition. One edge of the flexible foamed polyethylene (5) is in register with one edge of the layers (1) to (4) so that a selvage of layers (1) to (4) is formed. The exposed surface of the layer (5) is coated with an adhesive (6). This has applied to its exposed surface a sheet of siliconised paper (7).

The total width of the laminated sheet is 1m and the selvage is 100mm wide. The laminated sheet is about 35mm in thickness of which about 30mm is comprised by the flexible foamed polyethylene (5).

In use, the sheet is taken in rolls to a site. A roof deck is prepared by applying a primer thereto. The release sheet (7) is removed from the laminated sheet which is then laid on the surface so that the adhesive layer (6) is in contact with the primed surface. The laminated sheets are laid in conventional manner such that the layers of flexible foamed polyethylene (5) in adjacent sheets abut one another. The selvages are overlapped onto adjacent sheets so that a good weatherproof seal is formed.

Thus, use of the laminated sheet according to the invention allows a one stage application of insulation and weatherproofing to a roof deck, thereby eliminating at least one operation from the preparation of a roof.

## CLAIMS

The drawing originally filed was informal and the print here reproduced is taken from a later filed formal copy.

1. A laminated sheet comprising a bituminous sealing composition and a layer of flexible foamed material.
2. A laminated sheet according to claim 1,  
5 wherein the composition is sandwiched between a layer of impermeable sheet and the layer of flexible foamed material.
3. A laminated sheet according to claim 2,  
10 wherein the impermeable sheet is a polyethylene sheet.
4. A laminated sheet according to claims 1, 2 or 3, wherein the flexible foamed material is foamed polyethylene.
5. A laminated sheet according to any one of the  
15 preceding claims, and including a layer of adhesive on the surface of the flexible foamed material remote from the bituminous composition.
6. A laminated sheet according to claim 5, and  
20 including a release sheet on the exposed surface of the adhesive layer.
7. A laminated sheet according to any one of the preceding claims, and including a further layer of bituminous sealant composition on the exposed surface of the impermeable sheet.
8. A laminated sheet according to claim 7, and  
25 including a reflective coating on the exposed surface of the further bituminous layer.
9. A laminated sheet substantially as hereinbefore described with reference to the drawing.

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